How to Make a Mercury Interrupter

This kind of interrupter is very desirable and has the great advantage to heat little, while a large current can be sent through it. It is especially desirable for large wireless coils and, if desired, it can be constructed so that the vibrations are slow or fast, to suit different purposes. Its cost is very low and the vibrator can be made by mostly anybody in very short order.

Procure a standard binding post S, as per our engraving. A stiff steel or hard brass spring F, about 1/32" thick, ½" wide and 2½" long, is attached to binding post S by means of a screw. On one end it carries a soft piece of annealed iron, E, preferably shaped as shown in drawing. The weight of this piece is found by experiment, as no two coils will work well with the same weight. The stronger the current and the larger the coil, the heavier the iron piece must be. However, one must be careful, as too heavy pieces give rather slow vibrations. The iron piece is best attached to spring with two small screws (not shown in engraving). We would not recommend soldering, as it is rather hard to solder iron successfully.

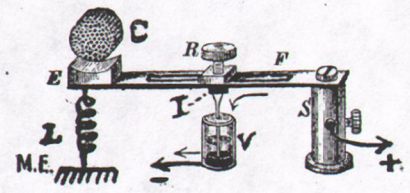
A slot, about 3/16" wide and about 1" long, should be filed in the middle of the spring F to make the thumb screw R, with its check nuts movable. This is clearly shown in our sketch.

A fairly stiff spring L is now fastened to spring at E to keep the armature from hammering against the core C of coil.

Next get a brass thumb screw R, standard size (any hardware store) and two check nuts. At the lower part of screw drill a hole and solder in same a platinum wire, gauge 14 or 16 B. & S., of suitable length.

Now get a small *iron* vessel V, on which a copper wire is fastened by means of a screw. If possible this vessel should be screwed down on the base which carries the vibrator. It can be done easily by merely tapping a hole in bottom of vessel to receive a small iron machine screw. This screw goes through the main base and keeps the vessel from falling. Several holes should be bored in the base to enable the iron vessel to move sidewise; it can then follow screw R, if quicker or slower vibrations are required. Do not use any other material but iron for the vessel, as the mercury used in it would soon destroy any other metal.

A small amount of mercury is now poured in the container and on top of this a film ⅛" thick of pure alcohol. Adjust the thumb screw R so that the platinum point dips about 1/16" in the mercury; this depth usually gives good results, although it may be varied to suit special requirements. Once adjusted where best results are obtained, check nut I is tightened to keep R from moving sideways or working loose.



To prevent splashing, vessel V may have a cover made of wood or card board, through the center of which the platinum wire is inserted.

By moving R and its check nuts towards the left, faster vibrations are obtained. Slower vibrations by moving to the right.

This vibrator usually needs a condenser and is capable to carry 25 amperes, providing, of course, the platinum wire is large enough to carry such a current.

LIFTING ELECTRO-MAGNETS.

Lifting electro-magnets come in use more and more each year. Factories handling heavy pieces of iron and steel cannot praise the electro-magnets enough. The largest electro-magnet built so far is able to lift 25,000 pounds with ease. A large Pittsburg hardware store uses the magnet to handle 80% of the house's hardware. Nail and bolt kegs are lifted rapidly and safely, and as the magnetism passes through wood as easily as through air, the keg stays of course intact.